D2.15/2:12/26

UNIVERSITY OF FLORIDA LIBRARIES
NOV 1972
DOCUMENTS DEPT.

COMMANDERS DIGEST
DEPARTMENT OF DEFENSE • WASHINGTON, D.C.

Vol. 12, No. 26 November 2, 1972

UNIV. OF FLORIDA LIBS.
DOCUMENTS DEPARTMENT
U.S. DEPOSITORY

DOMESTIC ACTION: Disaster Relief

East Coast Help Continues

Corps Of Engineers Leads Cleanup

FLOOD RELIEF. President Richard Nixon, surrounded by a crowd of newsmen and spectators, chats with a Pennsylvania couple made homeless by massive floods that followed on the heels of Hurricane Agnes. The family was one of hundreds of flood victims furnished trailer housing by the Federal Government.

(Official White House Photo)

When tropical storm Agnes caused massive floods last June in Pennsylvania, Maryland and Virginia, all sorts of military units swung into action to help their civilian neighbors. National Guard units in the states were in place and simply mobilized. The same was true of Army, Navy and Marine Corps reservists. The active establishment also contributed. The Navy and Air Force provided airlift. Helicopters in the entire East Coast area were pressed into service. There also was the Army's Corps of Engineers whose normal duties include construction of civilian flood control projects. And the "after" part of the story is one not widely known.

It was the Corps of Engineers which

tackled the less dramatic but herculean task of cleaning up after flood waters had receded. As a matter of fact, water was still in the streets when the Office of Emergency Preparedness set up a hundred centers throughout the disaster area to help the nearly half a million homeless people.

The President had declared portions of Pennsylvania, New York, Maryland. Virginia and Florida as major disaster areas, and Congress quickly appropriated $200 million for relief to add to the nearly $100 million that was already available.

The Army Engineers were already shoring up dikes, cleaning up debris and starting to repair bridges, sewage disposal plants and water supply facilities. The magnitude of the task was appalling. As the big Army trucks rolled in with bulldozers, front-end loaders, mobile water tanks and other equipment that had been assembled for the clean-up job, the people felt that there was hope. Engineers appeared to be everywhere, wearing distinctive red jackets and lapel buttons that read: "The Corps Cares."

Mission Assignment

The Office of Emergency Preparedness had directed the Engineers to take over the massive clean-up operations and they were ready for the job. During the flood, they had been working on the dikes and rescue missions so that they knew where the troubles were and how best to handle them.

Their first big job was to remove the debris and wreckage that hindered other operations.

Next they had to help restore power, water and sanitary facilities.

They were then directed to make temporary repairs to uninhabitable houses, repair bridges or erect temporary ones, help repair highways, develop sites for mobile or other temporary homes and try to put the flood area back into some semblance of liveable shape.

In all of the operations, they cooperated closely with a hundred other Government and private agencies that were also working around the clock. It was a gigantic task, and officers and civilian employees of the Corps were flown in from all over the country to assist.

Water purification units were set up by the Engineers and the Navy. Seabees brought in tank trucks to supply drinking water.

Sewer systems were a problem. Miles of pipe had to be replaced in many cities. When trenches are dug for new pipes, there is always a chance of damaging gas, water, telephone or power lines. In many instances, the plans showing where those lines were located had been lost in the flood, so it was a matter of inching along carefully or trying to find people who could remember where the lines were in certain areas.

Bridges

Bailey bridges were brought from the Engineer depot at New Cumberland across the river from Harrisburg and from Marion, Ohio. Bailey bridges look like giant erector sets and were, in fact, designed, during World War II, on that principle. They are expandable in length and width. They are easy to store because they come in small sections. They can be added to, and, if solid piers are available, they can be extended indefinitely.

As reports of destroyed bridges came into the Baltimore Engineer District Office, assessments of damages were quickly made and, if it was advisble to erect a Bailey bridge at the site, the units were trucked in immediately. When they arrived, Engineers were on hand to

AS WATERS RECEDED, mud-removal operations sometimes had the consistency of wallpaper paste. (Official U.S. Army Photo)

COMMANDERS DIGEST

A publication of the Department of Defense to provide official and professional information to commanders and key personnel on matters related to Defense policies, programs and interests, and to create better understanding and teamwork within the Department of Defense.

Published weekly by the American Forces Press Service, 1117 N. 19th St., Arlington, Va. 22209, a unified activity of the Office of Information for the Armed Forces, OASD (M&RA). Reproduction of content is authorized.

Telephones: (202) OXford 4-4912
Autovon 224-4912

oversee construction by contractors. Many bridges were erected by regular and reserve Army engineer units.

The Engineers showed training films on how to erect bridges. On one occasion, they showed it to a contractor on Sunday and the bridge was in place the following day.

At Whitney Point Lake, north of Binghamton, N.Y., the Engineers had built a flood control lake many years ago to protect Binghamton and other cities down river. Flying in a helicopter, two Corps civilian employees were checking the swollen lake and the recreational area surrounding it to find out if any damage had been done. The earthen dam had held. As they circled over the area, their helicopter hit a power line. Both men were killed.

Trailer Parks

The Corps of Engineers was assigned to build trailer parks and pads, along with the necessary utilities available to each unit.

First, in cooperation with state and local officials, they had to locate a suitable site, which might be a golf course, an athletic field, a park or any other open and available space.

After a site was located, they had to make a design so that the trailers would have water, sewage, gas and electricity. They also had to allow adequate open space around each home. The Corps was, in effect, building instant communities.

One architectural firm, under contract to the Engineers, designed a complete trailer community in ten days. Twelve architects worked 17 hours a day to finish it.

As soon as plans for a community were accepted, other contractors would start clearing away debris, digging ditches for utilities, laying pipes and stringing cables, and grading the area for proper drainage.

In many instances, the Corps gave prospective bidders for the projects only two days to prepare their bids so that the pads would be ready as soon as possible. In a short time, the Corps was turning over more than one thousand trailer pads a week to the Department of Housing and Urban Development.

In order to expedite the delivery of the mobile homes, the Federal Highway Administration asked 35 states to relax their traffic laws. Most states, because of the width of mobile homes, limit their movement to certain days of the week and only during specific hours of those days.

The need for housing for the flood victims took precedence over the inconvenience of highway users so that the homeless could be housed as soon as possible.

Not all of the mobile homes were set up in parks. They were, in some instances, delivered to the driveways of wrecked homes so that the owner could work on his house while he lived in his trailer. The arrangement also had the advantage of a comparatively easy hookup to existing facilities—providing they were functioning.

Temporary Housing

Another form of temporary shelter was the use of the fiberglass houses, similar to those lived in by athletes at the Munich Olympic games. The units have three or four bedrooms and can be occupied by six to eight people. Each has electric heating, a refrigerator, stove and bath.

The temporary housing provided by the Office of Housing and Urban Development is free of rent for twelve months. After that period of time, a rental program is to be worked out for those who are unable to find permanent quarters.

Emergency Home Repairs

Most people wanted to return to their homes as soon as possible, and to assist them, the Office of Emergency Preparedness set up a mini-repair program under the Corps of Engineers.

The mini-repair program provided enough basic repairs to make a house habitable. Corps personnel would check a dwelling, and, if it was possible to put it in liveable condition, they would arrange to have a contractor do the work at no cost to the owner.

Putting a dwelling into a livable condition consisted of fixing roofs, supporting weakened foundations, repairing doors and windows and ensuring that the house had electricity, gas, water and sewer connections. Cost of the repairs could not exceed $3,000 per house, and those who elected to have the work done gave up the opportunity to move into a mobile home or other Government-furnished temporary housing.

The Navy's Seabees and the Air Force's Red Horse Squadrons (Engineers) pitched in to help the Corps get electricity into the homes. The Navy assigned 100 men who restored power to as many as 200 houses a day.

Seabees first checked the wiring in a dwelling, and, if it was in good condition, they would restore full power. If not, they would either make temporary repairs or make a connection from the power source to the house and then install a 50-foot power line with four receptacles that could carry power to the upper floors of the house.

The Corps of Engineers contracted for electrical inspection service. Inspectors visited every damaged home and told residents what would have to be done to put the wiring in working condition. Many members of the electrical union donated their work to help.

Cleanup and Repair

The Corps was using up to 800 contract workers a day in the Scranton and Wilkes-Barre region alone to continue the cleanup of houses and businesses.

Among other services provided by the Corps was free bus transportation, maintained until local city transit systems were able to restore service.

People in many flooded areas were surprised to see Corps personnel digging small holes in streets, draining gas mains and utility conduits.

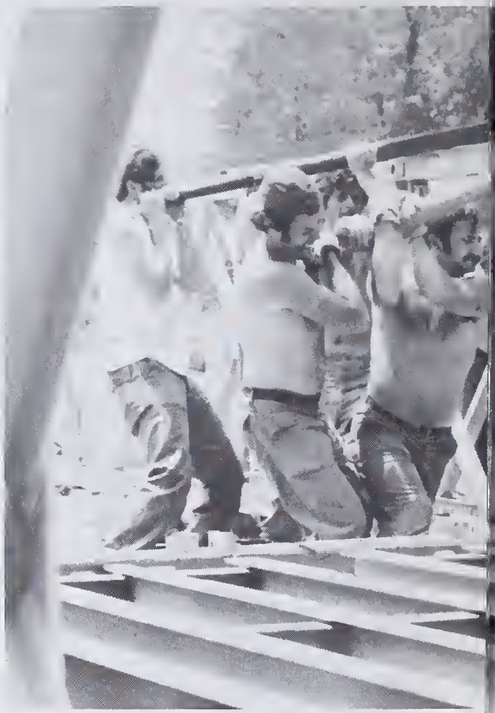
Piles of debris and junk attracted rats and insects, including some mosquitos that were identified as species capable of carrying a form of sleeping sickness. The spraying of the area with non-toxic chemicals prevented an outbreak of disease.

Part of the job of bringing the area back to normal was the necessary demolition of uninhabitable buildings that had floated onto highways or were left in the rivers. Thousands of such derelict dwellings could never be restored, and, with their owners' consent, the Corps removed them.

Bridges, twisted and broken in the rivers, had to be removed. Sometimes the Engineers would build a causeway to the wreckage cut it into manageable pieces, drive a crane onto the causeway and swing the pieces to trucks to be hauled away. No two problems were alike, but the Engineers usually found solutions to them.

Additional jobs given to the Corps included the determination of flooded area boundaries.

AGNES: A HOMEWRECKER. Debris from a wrecked home, strewn throughout a yard, awaits cleanup by U.S. Army Engineers.



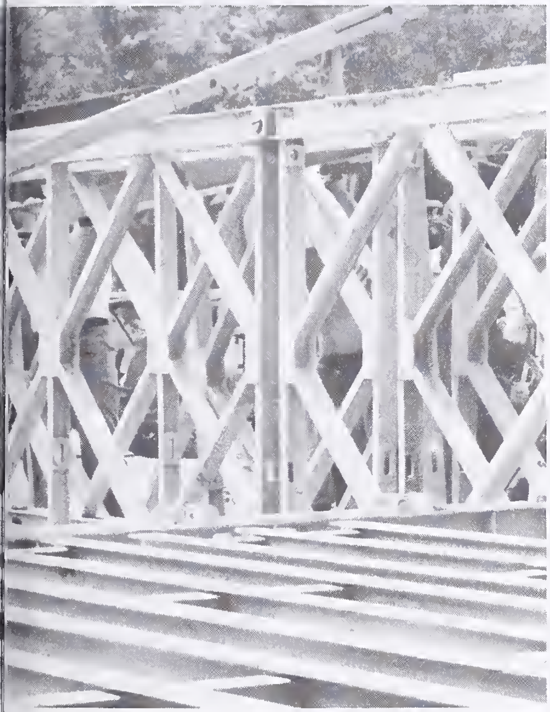
BRIDGE MAKERS. Army Engineers construct a temporary Bailey Bridge to replace a concrete span washed out by the floods.

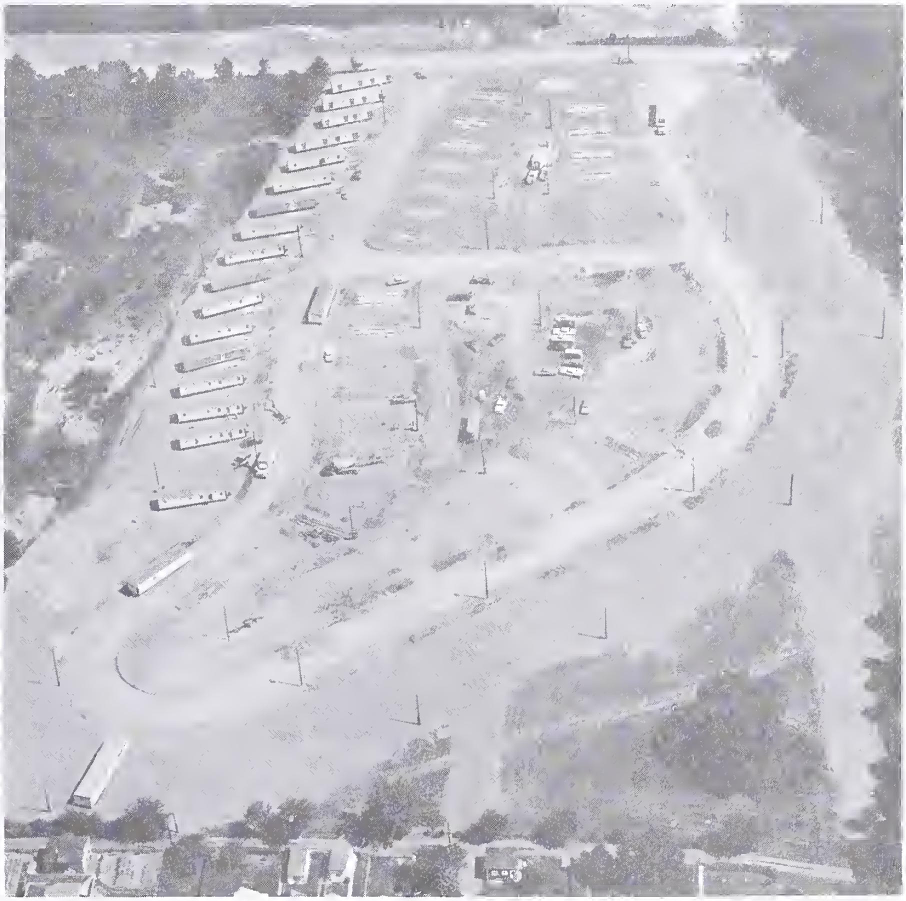
A
Commanders Digest
Photo Feature

1972's Floods Revisited

BACKSTAGE. Army Engineers coordinate their work behind the scenes with other Federal, state and local flood relief agencies in disaster operations centers such as the one above.

DEBIS
Agrs'





NEW CITY. Numbers of families, made homeless by Agnes-spawned floods, were housed in "instant communities"—groups of trailers set up on ground cleared and prepared by Army Engineers.

EMOVERS. Heavy equipment of the U.S. Army Corps of Engineers removes debris washed up by Hurricane oods.

ANOTHER LIFE SAVED. A Corps of Engineers employee takes time out from cleanup work to rescue a snapping turtle that had been caught in the muck and mire created by the floods.

Agnes In Retrospect

Corps Tells What Happened, What Didn't

In 1972, Hurricane Agnes brought record or near-record volumes of rainfall to the watershed-divide area where the headwaters of the Potomac, Ohio and Susquehanna Rivers originate. In the Ohio Valley, the damage was minimal, for the portions hit by Hurricane Agnes have substantial systems of flood-control reservoirs and other works. But in the Potomac and Susquehanna areas, the flooding took over 100 lives, and, in dollar terms, was the greatest natural disaster in U.S. history.

Environmental damage, too, was incalculably vast. In the valleys, despite the experience of earlier flooding, only incomplete flood control works had been provided in the Susquehanna Valley and virtually none at all in the Potomac Valley.

One of the worst-hit places was Wilkes-Barre, Pennsylvania, center of an industrialized valley that may never fully recover. A week after the flood not a single store had re-opened for business.

In Corning, New York, Corning Glass, Ingersoll-Rand and 96 other business firms were wrecked; an estimated 7,000 people lost their jobs; railways, highways and bridges were swept away.

Lockport, Pennsylvania, a city of 28,000, suffered damage that threw well over 2,000 people out of work.

Lewistown, Pennsylvania, suffered similar losses.

Point of Rocks, Maryland, was virtually wiped off the map.

Historic Ellicott City, Maryland, with its textile mills, was smashed and many other communities suffered similar fates.

What Didn't Happen

At Pittsburgh, Pennsylvania, ten flood control dams cut down the crest of the flood by 12 feet and saved an estimated three times their combined cost. The grateful Pittsburgh Press, in an article headlined "Engineers Were Right," said, "It is impossible to tell how many lives were saved and how much damage was prevented by the building of the flood projects. But we can be grateful that the dam opponents didn't succeed."

Fred Jones, the Press's conservation editor, wrote: "Pittsburgh's ring of 10 flood control dams saved the city from utter catastrophe. . . . Instead of $45 million in damage chalked up. . . . damage would have soared over the $1 billion mark. . . . All you have to do is look at the devastation that occurred in the unprotected Susquehanna River watershed to see what could have happened here if our dams had not been built."

Above York, Pennsylvania, the Army Engineers in 1938 built Indian Rock Dam. Some people claimed it was a wasteful boondoggle, good only for sport and recreation. But, this year, in three days, the dam repaid its cost three times over by holding thirty-six inches of water out of York.

Johnstown, Pennsylvania, is famous as the site of two historic floods. The legendary Johnstown flood of 1889 killed 2,200 people; that of 1936 killed 12 persons and put the city 18 feet under water. After the latter flood, the Army Engineers designed and built a channelization project at Johnstown. This year, despite the record runoff, the city and its people were safe.

The west branch of the Susquehanna in Pennsylvania crested 6 feet lower because of 12 dams that together held 22 billion gallons of water out of swollen channels. Without those dams, the levees at least at two towns—Williamsport and Sunbury—would have been topped. Another dam, proposed but still unbuilt, would have cut the crest down another six feet and saved much of the damage that did occur in the area.

Some Contrasts

Both Sunbury and Wilkes-Barre, Pennsylvania, had levees designed as parts of systems that were also to include upstream reservoirs; the levees were expected to hold only such flows as would be released from the dams.

Above Sunbury, twelve dams were built. When the flood came, they did their job, the levees held, and the city was saved.

At Wilkes-Barre, once the levees were in place, there was little interest in the reserviors. Only four of the planned fourteen were built. Consequently, the levees were overtopped and gave way, and the city suffered catastrophic losses. The Army's Chief of Engineers, Lt. General Frederick J. Clarke, has commented: "It could well have been a different story at Wilkes-Barre had the other projects been in."

One stream near Pittsburgh remained unprotected—the Clarion River. Down that one stream descended a sixth of all the floodwater that hit the Ohio River Valley in the Pittsburgh region. If the proposed dam there had been built, it would have reduced the flow to less than 68,000 cubic feet per second, knocked three feet off the crest of the Ohio, and eliminated most, if not all, of the $45 million damage that did occur in Pittsburgh.

One of the worst-hit towns in New York state was Elmira. In 1946, that town had been stricken by a flood-flow that crested at 20.5 feet. When the flood was over, the community put up levees adequate to keep out flows up to 22 feet, but two recommended supplemental storage reservoirs were never built.

This year, flood flows crested at about 34 feet. The two dams would have lowered the crest to a safe fourteen feet and prevented most, if not all, of the damage at both Elmira and Corning.

The dams together would have cost an estimated $85 million when authorized. Today their cost estimate is $148 million. Even that figure seems modest when compared with the $100 million damage suffered at Corning alone in just one week.

Corps Wears Two Hats

Civilian Role Is Historic And Demanding

Protecting lives and property from ravaging flood waters has been a primary responsibility of the Corps of Engineers since 1936, when, for the first time, the Federal responsibility for national flood control was defined by the Congress. Since that time, the Corps has constructed more than 650 projects to regulate flood waters, thus reducing flood damages. Corps projects of all categories now effective for flood control have prevented well over $20 billion in damages since 1918.

The tools used encompass a full range of engineering applications, including reservoirs for holding flood waters, levees for containing flood flows, floodways for passage of excess flows past critical reaches of larger rivers, channel improvements and stabilization to increase the flood-carrying capacity of rivers, and tributary basin improvements, such as flood gates, pumping plants and auxiliary channels.

Multi-Purpose Concept

The Corps has developed a multi-purpose concept of planning and executing water resources projects, whereby a project may provide not only flood control, but also contribute to recreation, navigation, fish and wildlife enhancement, water supply and hydroelectric benefits.

The Chief of Engineers is the systems manager for engineering support for the Army, and, as such, is responsible to the Secretary of the Army and the Army Chief of Staff for managing a wide variety of engineering activities.

In carrying out his responsibilities, the Chief of Engineers heads the world's largest and most versatile construction agency. As manager of the Nation's comprehensive water resources development program—the Army Civil Works Program—the Chief of Engineers directs waterways planning, design, construction and operation. He provides a complete construction management and engineering service for the Army. As assigned, he designs and constructs for the Air Force, for the U.S. Postal Service, National Aeronautics and Space Agency (NASA) and for other U.S. Government agencies and foreign governments.

Lt. Gen. Frederick J. Clarke
Chief of Engineers, U.S. Army

Real Estate Transactions

The Chief of Engineers also manages real estate transactions for the Army and the Air Force; he provides management guidance for the Army's post maintenance and repair program; he implements the Army family housing program; and, as the principal Engineer advisor to the Army Chief of Staff, he provides staff management and supervision of military engineering and topographic functions throughout the Army. In addition, he is responsible for the Army program to develop nuclear plants for generation of electric power, for Civil Defense shelter and related programs, and for the study of engineering feasibility of an Atlantic-Pacific Interoceanic Canal.

Field Agencies

To help him carry out his duties, the Chief of Engineers has field agencies and a headquarters staff. The latter, the Office, Chief of Engineers, is composed of four operating directorates, ten technical and administrative offices, and special advisors, boards and commissions. The construction field agencies are spread throughout the world. There are 13 Divisions and 37 District Offices, commanded by Engineer officers and staffed primarily by civilian employees.

Laboratories under the Chief's direction and command are engaged in research for improved materials and techniques for use in military and civil works construction; studying problems in hydrology and hydraulics; developing new equipment and techniques in mapping and geodesy; conducting studies in soils mechanics to enhance the Army's mobility, and research to develop better protective coastal works and shore structures.

The Chief of Engineers and his staff are actively engaged in providing general and specialized engineering support to the Army, including: assistance in organizing, equipping, training and force structuring of active and reserve Engineer units; the development of new and improved engineer techniques and materials; underground and underwater nuclear weapons effects research; and special studies with logistical and engineering implications for the Joint and General staffs.

FLARE

UNIVERSITY OF FLORIDA
3 1262 09684 0482

ARMED FORCES INITIATIVES

RESEARCH AND DEVELOPMENT. The Hawaii Laboratory of the Naval Undersea Center (NUC) has been training whales to make deep-ocean recoveries of such objects as experimental torpedoes and other test ordnance in NUC's "Deep Ops" program. The system employs a hydrazine gas generator lift device attached to a mouthpiece which the whale grasps as it descends to the ocean floor. An acoustic pinger attached to the submerged object guides the whale. A grabber claw, when pressed against the object by the whale, locks the lift device onto the torpedo. The hydrazine system is activated when the mouth-piece apparatus separates from the lift device. The gas inflates a balloon which floats the object to the surface for loading aboard a recovery boat. (Official U.S. Navy Photo)

DOMESTIC ACTION. Seventy-five soldiers from Company E, Fourth Battalion, Ninth Infantry, Fort Wainwright, Alaska, recently assisted the village of Unalakleet in building 19 new homes. Other Federal agencies provided funds for the building materials. Manpower was donated by the troops. The soldiers erected fire escapes (above), painted buildings and placed roofing on the new homes in the tiny community, located on the shore of Norton Sound, Alaska. (U.S. Army Photo)

RESEARCH AND DEVELOPMENT. A simple and lightweight ration- and water-heating fuel unit has been developed by the Environmental and Survival Branch of the U.S. Army Land Warfare Laboratory at Aberdeen Proving Ground, Maryland. The fuel unit, using a substance named Delrin, has overcome at least one shortcoming experienced with the current standard fuel tablet, Trioxane. The new water-food heating unit is non-toxic and does not lose its heating power if it comes in contact with moisture. (Official U.S. Army Photo)

DOMESTIC ACTION. The 26th Supply and Transport Battalion of the Massachusetts National Guard's 26th (Yankee) Infantry Division has been removing abandoned cars and wrecks from civilian communities. About a dozen men, using four dump-trucks, a 20-ton crane and two Jeeps, have been responding to calls for help to remove the eyesores from Massachusetts towns. The men, who receive drill credit for their work—done on weekends—have cleaned up rivers, ponds and streams. In one small town alone, Guardsmen found 96 abandoned cars, 20 of which were removed in one weekend. Since the project started, 162 vehicles have been removed and the waiting list is growing rapidly.

JOBS FOR VETERANS. Four hundred fifty severely disabled veterans will be trained in paraprofessional positions and employed by various State Employment Services under a new $2 million manpower project. Labor Secretary James D. Hodgson says the program will allow disabled veterans to be immediately employed and trained in positions where they will have face-to-face contact in serving other disabled veterans. Labor Department funds will support training and education costs for two years and pay the wages of the 450 veterans for the first six months. After two years, the ex-Servicemen are expected to continue as regular staff members of State Employment Service Offices.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.
Price 5 cents (single copy). Subscription Price: $2.50 per year; $2.00 additional for foreign mailing.
☆ U.S. GOVERNMENT PRINTING OFFICE 513/343/X-23